

Claims:

What is claimed is:

- 1 A system for memory management comprising:
 a computer system or virtual machine having a memory space; and,
5 wherein reinforcement learning is used to control the management of the
memory space.
2. The system of claim 1 wherein the management of the memory or storage
space includes a garbage collection process.
- 10 3. The system of claim 1 wherein the virtual machine is a Java Virtual Machine.
4. The system of claim 1 wherein the reinforcement learning uses a temporal
difference method.
- 15 5. The system of claim 4 wherein the temporal difference method uses on-line
SARSA.
6. The system of claim 5 wherein the temporal difference method using SARSA
20 uses tile coding.
7. A system for memory management comprising:

a computer system including a virtual machine operating thereon;

a memory space within said computer system and accessible by the virtual machine for the runtime storage and execution of applications; and,

5 a garbage collector that uses reinforcement learning to control the allocation of memory to applications within said memory space.

8. The system of claim 7 wherein the virtual machine is a Java Virtual Machine.

10 9. The system of claim 7 wherein the reinforcement learning uses a temporal difference method.

10. The system of claim 9 wherein the temporal difference method uses on-line SARSA.

15 11. The system of claim 10 wherein the temporal difference method using SARSA uses tile coding.

20 12. A method for memory management comprising the steps of:
analyzing the memory or storage space of a computer system or virtual machine; and,
using a reinforcement learning technique to control the management of the memory or storage space.

13. The method of claim 12 wherein the management of the memory or storage space includes a garbage collection process.

14. The method of claim 12 wherein the virtual machine is a Java Virtual Machine.

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15. The method of claim 12 wherein the reinforcement learning uses a temporal difference method.

10 16. The method of claim 15 wherein the temporal difference method uses on-line SARSA.

17. The method of claim 16 wherein the temporal difference method using SARSA uses tile coding.